MARINE RECORD

ESTABLISHED 1878.

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ork Herald, which steadily maintains its lead
rine and foreign intelligence, has with charac-
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ews from incoming trans-Atlantic steamers fifteen
arlier than at present. Not only will the approach of
essels be reported, but all important happenings on
d during the voyage. The Herald continues to avail it-
of all modern means of collecting news.

LYING MACHINES AND THEIR COMMERCIAL USES.

The underlying principle of maintaining equilibrium in
e air is that the center of pressure upon the sustaining
rfaces shall at all times be upon the same vertical line as
e center of gravity due to the weight of the apparatus. In
lm air this is fairly secured, but in a wind the center of
essure is constantly shifted by the turmoils of the air, for
advances or recedes with the diminution or increase of the
gle of incidence.

In regard to the shape of surface to be employed, Lilien-
al demonstrated that concavo-convex wings, like those of
rds, are far superior in supporting power to planes, and the
ter have now been practically abandoned by aviating ex-
rts.

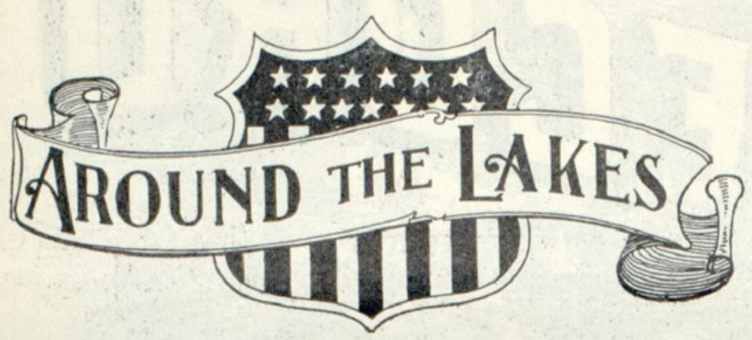
The propeller is the next thing to be considered after the
uilibrium has been secured and a reliable motor worked
t. Both Hargrave and Lilienthal gave preference to flap-
g vanes over the screw propeller, but other experimenters
fer screws. It is yet too soon to draw definite conclu-
ns on this question, and it opens a field for further ex-
imenting.

We can, however, already calculate appoximately the pro-
tion, the strength and weight, the supporting efficiency,
speed, and the power required for a projected flying
chine, so as to judge of the practicability of a design.
leed, the mathematics of the subject have been so far
olved that engineering computations may eventually re-
ace vague speculation in the domain of aerial navigation.

But after the problem has been worked out to a mechani-
cal success, the commercial uses of aerial apparatus will be
small. The limitations of the balloon are various; such
craft will be slow, frail, and very costly.

We are now sufficiently advanced in the design of flying
machines to perceive some of their limitations. They will be
comparatively small and cranky, require much power, carry
little extra weight, and depend for their effective speed, on
each journey, whether they go against the wind or with it,
so that they cannot compete with existing modes of trans-
portation in cheapness or in carrying capacity. It is true
that high speeds may be attained, and this may serve in war,
in exploration, perhaps in mail transportation, and in sport;
but the loads will be very small, and the expenses will be
great. But flying machines will develop new uses of their
own; and as mankind has always been benefited by the in-
troduction of new and faster modes of transportation, we
may hope that successful aerial navigation will spread civil-
ization, knit the nations closer together, make all regions
accessible, and perhaps so equalize the hazards of war as to
abolish it altogether, thus bringing about the predicted era
of universal peace and good-will.—Octave Chanute, in Cas-
sier's Magazine for June.

UNITED STATES newspapers are making all the capital they can out of the accident that happened in the St. Lawrence canals to one of the vessels that recently left Chicago for Liverpool. The New York Journal says, the much talked of Canadian route has proved a failure. The Buffalo Express says it has reason to believe that the St. Lawrence canal route is in no better condition than it has been for the last five years. Similar statements appear in other papers. We trust the Government will lose no time in issuing an official statement as to the practical capacity of our enlarged waterway. If the United States papers are circulating false statements about the St. Lawrence route they ought to be corrected by an official statement from the Government. If the statements are true the Government ought to lose no time in removing the obstructions that interfere with the safe navigation of 14 foot vessels.—The Toronto World.



CHICAGO.

Special Correspondence to The Marine Record.

Capt. James Barry has been re-appointed harbormaster.

One of the latest charters was closed at 1⅜ cents on wheat to Midland. The Buffalo offer was down to 1½ cents, and a number of vessels changed ports rather than accept th figure, although some charters have been made this week 1⅜ cents.

It is expected that the three clam shell scoops which a installed on the dock of the E. L. Hedstrom Coal Co., Second street and the Calumet River, will unload boats the rate of three tons a minute after they get into good wor ing order.

There is a prospect that the big whaleback steamer Chri topher Columbus of the Goodrich line will be chartered take a load of rich Chicagoans down to Lake Erie to see t big race on June 5, between the steamers Tashmoo and t City of Erie.

It is reported that a charge of criminal negligence will preferred against the officers and crew of the life-saving s tion at Fifty-ninth street. The charge is backed by t Chicago Yacht Club in connection with the drowning a f days ago of a member of the club.

Joseph Brownell, for two seasons past first mate of t Canada-Atlantic liner Arthur Orr, has been appointed to command of that steamer. Capt. Massey, who has co manded the Orr for five seasons, has been transferred to large new steel steamer W. L. Brown, under charter to same line.

The steamer Parks Foster, collided with the southe approach of the Baltimore & Ohio railroad bridge over Calumet river on Sunday and knocked four large stones the piers. The steamer received a bad dent in her bow. T damage to the abutment prevented the bridge from being sh until temporary repairs had been made. The bridge was hel open over an hour by the accident.

It is simply out of reason for the Treasury Department not to appoint a U. S. shipping commissioner at this, the second shipping port in the country. The collector of customs has enough to do already without attending to the special duties required in opening up shipping articles for foreign-going vessels. The crews must be signed on in due form at the port of clearance and there ought to be a shipping commissioner to do it.

The steamer Merida, which ran into the center pier of Rush street bridge Tuesday morning, and did some damage, was libeled by the city authorities. Vesselmen say the city officials are returning to the methods which caused such delay along the river last summer, when several steamers were seized without warning when about to sail, and subjected to costly delay. The city hall people refused to accept the guarantee of the Chicago agents of the boat, and insisted on a formal bond.

It is reported along the river that an action is soon to be started by Mr. Sands, the millionaire lumberman whose boats are boycotted by the Licensed Tugmen's Protective Association, or rather by the engineers employed on the tugs of the Great Lakes Towing Co. It is difficult to see what grounds Mr. Sands has for a prosecution of the tugmen or the company that employs them. Usually, men can work or play, as they please, and under present conditions they are backed by their owners.

The Licensed Tugmen's Association has declared a boycott against Louis Sands, the Manistee lumber merchant. In consequence the schooner Isabella Sands which arrived at Chicago last Thursday with lumber, is still in port, because the crews of the Chicago river tugs have refused to tow her into the lake. There are three tug lines in Manistee—the Canfield, the Independent and the Sands line. The first two employ union men and through the boycott the tugmen hope to bring the Sands line to time.

The Canadian steamer Seguin is libeled on a suit for the loss of some 70,000 feet of lumber last season. The Seguin was chartered to bring Canadian lumber to Chicago for the Hartwell Lumber Co., and during a voyage last June sprung a leak, and the lumber was jettisoned, the claim being made that its loss came under the head of general average. The Hartwell Lumber Co. and the Ætna Insurance Co., which had the risk on the cargo, set up the claim that the lumber was lost because the Seguin was either overloaded or else unseaworthy.

General Manager Faithorn of the Wisconsin & Michigan railway announces that his company will build extensive ore docks at Peshtigo and enter into the field for carrying iron ore from the mines to the lakes. From Peshtigo the ore will be loaded into the car ferry barges operated by the Lake Michigan Carferry Transportation Co. These barges are of light draft and can load to good advantage to the furnaces in the Calumet river, where the limit of draft is about ten feet. The Wisconsin & Michi-

DULUTH—SUPERIOR.

Special Correspondence to the Marine Record.

Capt. C. S. Barker died suddenly in his office on Tuesday.

The Duluth grain market is worse than dull, and no outside or single trip chartering is being done.

Lumber rates which had been holding at the unsatisfactory figure of $2.25 per M feet has advanced 25 cents, chiefly on Buffalo-Tonawanda cargoes. Other Lake Erie ports are offering the lower rate but not securing tonnage.

The Menominee Bay Shore Lumber Co., of Menominee, Mich., has sold to the Glenn Eddy Lumber Co., of Saginaw, Mich., 200,000,000 feet of pine, tributary to Ashland, Wis. The consideration at the present market price of lumber is about $2,000,000.

The vessel-reporting station at Detour, conducted by the Lake Marine News Association, has been discontined. This ...lidation of the fleets in the steel trust and the ...evenue paid for these reports

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DETROIT.

Special Correspondence to The Marine Record.

The iron ore rate quoted here is the steady opening rate of 80, 70 and 60 cents from Duluth, Marquette and Escanaba respectively.

The Mariner, Sage, United Lumberman and the Athens all grounded at the Lime Kiln Crossing previous to Monday of this week.

A light has been placed over the wreck of the Martin in St. Clair river at Port Huron, temporarily, pending a further examination of the wreck by the Government engineers.

The United States revenue cutter Fessenden is being overhauled and repainted, preparatory to going into commission about June 1. J. B. Moore will be in charge this year, with Lieut. B. L. Reed second in command.

The House passed Hunt's bill to tax vessel property where the principal business is done, instead of where the owner may elect to have offices. The bill went through without any particular discussion. It now goes to the Senate.

Water in the Detroit river has reached the highest point this season, and up to three inches above the regular summer normal at the Detroit, Belle Isle & Windsor ferry dock. For several weeks during the spring the water was down to 30 inches below normal.

The wrecking steamer Favorite is at work on the Western Transit Liner Boston, ashore 12 miles east of Cheboygan, in the Straits of Mackinac. She was bound from Buffalo to Chicago with general cargo, and stranded on a rocky bottom during a dense fog.

So a rolling lift bridge is wanted to take the place of the main viaduct at Cleveland, the present structure has lasted 25 years and if ever a curve at lake harbors wanted straightening it is that one where the Detroit passenger boat lands at and where this viaduct now stands.

Secretary of War Root has notified Senator McMillan regarding the proposed flushing canal from Lake Huron to Black River, that he has forwarded to the city authorities of Port Huron an instrument granting the said city permission to construct the canal upon certain stipulated conditions.

There has been more or less delay this week on account of the machinists' strike, but it looks as if the demands of the machinists will be granted, as from present indications the employers seem in a conciliatory mood. The marine interests most interested are the Detroit Ship Building Co., Messrs. S. F. Hodge & Co., and the Michigan Yacht & Power Co. I have no authority for stating how they will act in the premises.

Col. Anderson, chief engineer of the marine department of Canada, states that owing to shifting sands it has been found impracticable to place the proposed new light-house on the southeast shoal in Pelee Passage, between Pelee Island and Pelee Point, Lake Erie, and the structure will, therefore, have to be placed on the middle ground, as originally contemplated. Shipping men, who had asked for the change, will be disappointed, but it cannot be otherwise.

By the death of Robert D. Wagstaff, for many years marine reporter for the Detroit Free Press, the marine fraternity loses a good friend and writer. Mr. Wagstaff was one of the best known newspaper men on the lakes. He was extremely well versed in nautical affairs. Mr. Wagstaff was born in Buffalo thirty-four years ago and was connected with the Free Press for ten or twelve years, during which time he made a host of friends among lake men as well as owners and others connected with shipping.

Capt. Alonzo Carter died on Tuesday, at the residence of his son-in-law, H. C. Walker, 645 Fort street east, after a lingering illness of three years. Born at Belfast, Me., 67 years ago, he took to the sea when a mere boy, and for 20 years he sailed all over the world. Then he gave up salt water for fresh, and commanded sailing vessels on the lakes up till three years ago, when his broken health compelled him to retire. He leaves three daughters: Mrs. H. C. Walker and Misses Annie and Margaret Carter.

Mr. C. F. Bielman, secretary of the White Star line, owners of the steamer Tashmoo, went to Cleveland this week. Mr. Bielman is confident that his boat will win, but he would not say anything about what time she will make in the race with the City of Erie, or the amount of the stakes put up on the side, which, however, are known to be rather heavy. Mr. Bielman is figuring on sending the steamer City of Toledo to Lake Erie on the day of the race. If he does he will take an excursion party down to see the finish.

The water guage signals, kept by the Lake Carriers' Association, at Stanley B. Smith's and the Pittsburg Co.'s coal docks will, until further order, report the depth of water at the Lime Kiln Crossing and vicinity up to 18 feet of water, and no higher. Should communication between Duff & Gatfield and these stations be cut out at any time, all depth signals will be discontinued, and during the night time two red lights, one five feet above the other, and during the day a red flag, will be displayed in the place of the usual guage signals.

Christian Johnson, a sailor, has commenced a $25,000 damage suit at Port Huron against the owners of the steamer Isaac Lincoln, Captain Egbert, of this city; Isaac Lincoln, of Aberdeen, S. D., and A. F. Price, of Fremont, O. The steamer was tied up on a writ of attachment, but released upon the furnishings of a bond. Johnson alleges that while working on the boat last summer at Toledo he was permanently disabled from injuries sustained from the falling of a boom. Negligence is claimed owing to the alleged unsafe condition of the boom.

CLEVELAND.

Special Correspondence to The Marine Record.

The safe draft at the "Soo" locks is given at 17 feet 10 inches.

Mr. J. C. Gilchrist took a block of 500,000 tons ore this week at 80 cents, from the head of the lakes.

Mr. Quincy Miller, known to the entire sailing community on the after end of the boat, is now chief of the Onoko, the first iron steamer built in Cleveland.

It is learned here that it is the intention of Mr. Clergue to establish a shipyard at Owen Sound, Ont., and that steps have already been taken towards this end.

The bottom frames are all in and work started on the tank top of the first steel steamer building here to the order of Messrs. Chas. E. and W. F. Peck, New York.

It is figured that the Pittsburg Steamship Co. (United States Steel Corporation) has chartered tonnage to carry 3½ million tons of ore over the capacity of its own fleet.

Mr. Omer Steele, superintendent engineer at the local shops of the American Ship Building Co., is looking younger than ever, his rotund aldermanic proportions hide no more of the sun's rays than formerly.

The Great Lakes Towing Co., has selected the tugs that will act as stake boats and carry the judges and timers for the Tashmoo-Erie race. The Harvey D. Goulder will be stationed off Cleveland and the tug America will be at the finish line off Erie.

The Cleveland-Cliffs Iron Co. has secured valuable Bessemer ore mining property on the Gogebic range and the people in the vicinity are congratulating themselves, mainly, because the Cleveland Cliffs are the best people in that part of the country to work for.

The customs authorities are getting after the British vessels on tonnage dues; this move is aimed at the four boats in the employ of F. H. Clergue and named Paliki, Theano, Monkshaven and Leafield, making this a port of call on their way from salt water to Lake Superior.

Capt. Frank Young, for many years a well known master of lake vessels, died suddenly while walking in Merwin street on Saturday morning. He was seventy years old. For several years he has not been actively engaged in business, though well known along the river front.

Dr. E. A. Smith, acting assistant surgeon of the Marine Hospital, has been in attendance this week at the river customs office and making examinations of incoming crews and vaccinating those who required it. Vaccination is not compulsory, but it is requested in many instances.

The big syndicate (Pittsburg Steamship Co.) has not been altogether successful in beating the iron ore rate down to 70 cents from the head of the lakes, the going rate is still quoted at 80 cents though some tonnage has been chartered ahead for 70 and 75 cents, about a million tons has been placed this week.

The Lake Carriers' Association favors a lift bridge in place of the central viaduct, now found insecure and a bar to river widening on account of the piers being worked in, on, or near a quicksand foundation. The association seldom lends its attention to local matters, except when it affects the general lake trade.

Capt. A. B. Wolvin, Duluth, president of the Lake Carriers' Association and general manager of the Pittsburg Steamship Co., was in Cleveland this week and attended the launch of the Frank H. Peavey, named in honor of the well-known Minneapolis and Duluth grain merchant. Capt. Wolvin, who is a stockholder in the new craft, will also be manager of the fleet.

Mrs. Alexander Gilchrist, died at her home in Vermillion on Friday last. She was the mother of Capt. J. C. Gilchrist, who is considered the largest invidual vessel owner on the lakes. Another son, C. P. Gilchrist, resides in Cleveland and a daughter, Mrs. Wm. Frey, lives in Findlay. Mrs. Gilchrist was 80 years of age.

Three to four dredges are at work on the river, and the deepest draft vessels will find water enough up to the central furnace. Capt. W. C. Richardson and Mr. A. D. De Forest, manager of the American Steel & Wire Co., received the assurance of City Engineer Carter, that the necessary dredging would be strictly enforced according to contract.

The Northman, from Chicago for Hamburg, reached Montreal ahead of the boat first despatched for Liverpool. Pilot Delaney, of St. Catherines, claims that there is a neat 14 feet of water all through, but the steamer was only drawing 13 feet 3 inches. It is learned that these line boats will carry deals which is not a very paying cargo for Atlantic line steamers.

The following local meteorological observations are furnished by the Cleveland office of the U. S. Weather Bureau for the week ending May 22, 1901: Prevailing wind direction during week, N. E.; highest velocity, 48 East, on 21st. Mean temperature for week, 56; highest temperature, 71, on 17th; lowest, 45, on 16th. Sunrise and sunset data, computed for local time at Cleveland: May 23, sun rises at 4:31; sets at 7:21. May 27, sun rises at 4:28; sets at 7:25. May 31, sun rises at 4:26; sets at 7:28.

The many friends of Mr. Robert Wallace will be pleased to learn that he is still the robust, healthy, fresh looking man as of yore. In attending the launch of the Marquette at the old Globe shipyards on Saturday last I had the pleasure of meeting Mr. Wallace and I feel confident in stating that he has not turned a hair in so far as appearance is concerned during the past decade. Father Time is dealing gently with Mr. Wallace and most of your readers will agree with me in stating that he is well entitled to just such favors.

Coal shippers are freezing hard on a 35 cent rate while vessels are holding just as firmly for 40 cents and better if possible to Lake Michigan or Superior. There is a unanimity about the 40 cent rate among owners and brokers, which s the same interest now, and they are likely to obtain that figure or go seeking elsewhere. One thing, steel boats can always clear in water ballast and especially during the fine summer months, so that if coal is carried it ought to pay its due share of expense instead of being carried for ballast as in former years.

The Plain Dealer man is away off in stating that: "The Treasury Department has issued an order to the effect that in the future registration will be refused to all boats having a name over six letters in length. The intention is to simplify the names of boats and avoid much confusion." Without seeking any further information from any source I may say that the Treasury Department has made no such ruling, although the Commissioner of Navigation has frequently asked that names be not duplicated, made too lengthy or in any way horrible of pronounciation.

FLOTSAM, JETSAM AND LAGAN.

Our respect for Chicago is large and growing, but our respect for the truth moves us to say that when it comes to measuring up Chicago as a seaport town she looks enough like thirty cents to pass in the dark for a quarter and a nickel.—New York Marine Journal.

The country will continue to increase its ocean shipping interests with or without government bounties. It will also build tonnage for the high seas in larger volume than at any former time since the days of the old clipper ships and the supremacy of American wood, then very abundant and cheap, in the shipbuilding of the world.

The following scale of wages has been decided upon by the Atlantic Coast Seamen's Union for sailors on vessels trading from Philadelphia, Baltimore and Newport News to Providence, Boston, New Bedford, New York and other nearby ports. Vessels under 500 tons, $25 per month; vessels over 500 tons and less than 1,500 tons, $30 per month; for 1,500 tons and over $35 per month.

McClure, Phillips & Co., New York, have just published "The Cruise of the Petrel," a novel of sea life, treating of the period of the war of 1812, and dealing largely with the romance and adventures arising from the privateering so common at that time. The tale is founded in some part on the records of the logbook of Rear Admiral Jenkins, the grandfather of the author, T. Jenkins Hains. The latter acquired considerable fame from his "Windjammers" and "Mr. Trunnell, Second Mate."

LAUNCH OF THE PERE MARQUETTE 17.

(ILLUSTRATED)

The twin screw, steel car-ferry, Pere Marquette 17, built to the order of the Pere Marquette Railway Co., by the American Ship Building Co., was successfully launched from the Cleveland yards on Saturday May 18.

The general hull dimensions of the new steamer are as follows: 350 feet over all, 338 feet keel, 56 feet beam and 19½ feet in depth from the main or car-ferry deck but 36½ to the upper or spar deck on which passenger accommodations are fitted, she will carry 32 loaded railroad cars on a draft of 14 feet at an estimated speed of 14 miles per hour.

Her engines are two sets of triple compound direct acting with cylinders 19, 31 and 52 inches with 36 inch stroke. The boilers are of the Scotch type, 4 in number, each 13¾ feet in diameter and 12 feet long, fitted with corrugated furnaces and to be allowed 175 pounds of steam.

The Pere Marquette 17 has been fitted with the latest and best equipment, including the "Globe" windlass and steam steering gear, 4 "Providence" steam capstans and feed, bilge, sanitary and cooler pumps, furnished by Dean Bros., Indianapolis. The electric light installation is that of the General Electric Co., Schenectady, N. Y. She carries two masts and is fitted with 4 metallic life boats approved according to the government inspection service.

Promptly at 2 o'clock the christening platform was occupied by Mr. G. H. Kimball, chief engineer of the Pere Marquette Railway Co., and his daughter Miss Kimball, who performed the christening ceremony. General Manager S. T. Crapo, Superintendent W. L. Mercereau and a party of their friends representing the owners of the boat, also Mr. Robert Logan, Cleveland, consulting engineer and superintendent of construction. Mr. James Wallace, General Manager of the American Ship Building Co. and other builders' representatives were also present. Exactly at the appointed time the word was given to cut away and as the hull started Miss Kimball liberated six snow-white pigeons, (a la Japanese style) exclaiming at the same moment "I christen thee Pere Marquette 17," as the craft left the ways the pigeons circled around her and winged in circles until lost to sight. The launch was one of the most perfect and successful ever witnessed, the weather was simply superb, and the thousands that were on the ground seemed to be heartily pleased at the punctual and perfect manner in which the large hull was sent from the ways to her future element.

With the addition of the new craft, which is chiefly intended to develop the Milwaukee-Ludington commerce, the Pere Marquette Railway Co. has now three large twin screw car-ferries, the other two, one of which is of steel, was built at West Bay City, also under the superintendence of Mr. Robert Logan, are engaged on the Manitowoc-Ludington route, but the new boat has been given more power as well as passenger accommodation, than either of the other two and she is expected to be ready for service about the middle of July, so that nearly a full summer's work is ahead of her before she will be called upon to enter ice, as all of these boats are ice crushers as well as railroad car-ferries. The cost of the Pere Marquette 17 will be in the neighborhood of $360,000. We herewith present a view of her sister ship, Pere Marquette, showing the manner in which the cars are transferred from the wharf, etc.

EASTERN FREIGHT REPORT.

Messrs. Funch, Edye & Co., New York, report the condition of the eastern freight market as follows:

The business transacted during the last week has been on a very limited scale. The two small steamers reported fixed for grain have been able to secure a trifle in advance over what shippers were prepared to pay, owing to the scarcity of handy size boats. The larger class of tonnage, however, has had to accept the prices, current during the last week or so. Further charters have been effected for general cargo business from the Gulf, principally for Denmark to fulfill old contracts for the carrying of oil cake. The inquiry for grain tonnage from this direction, however, is still neglected. A new departure in the transportation of case oil is the fixture of a large steamer of 250,000 cases hence to three ports in Australia, this being the first charter of its kind by steam to that direction. Tonnage continues to be taken for deals from the British Provinces, but for timber from the Gulf shippers do not seem to have any pressing requirements.

Sail tonnage continues devoid of animation as well as of any interesting features and rates remain nominally without change.

JAMES J. HILL'S haste to complete the four large steamships which he is having built for his Oriental trade by the way of his Northern lines and Seattle, and the vigorous pushing of the plans for big transfer docks in West Superior and elevator facilities in Duluth are due, in a measure, to the advent of a new competitor in the field.

ILLUMINATED LIFE BUOYS.

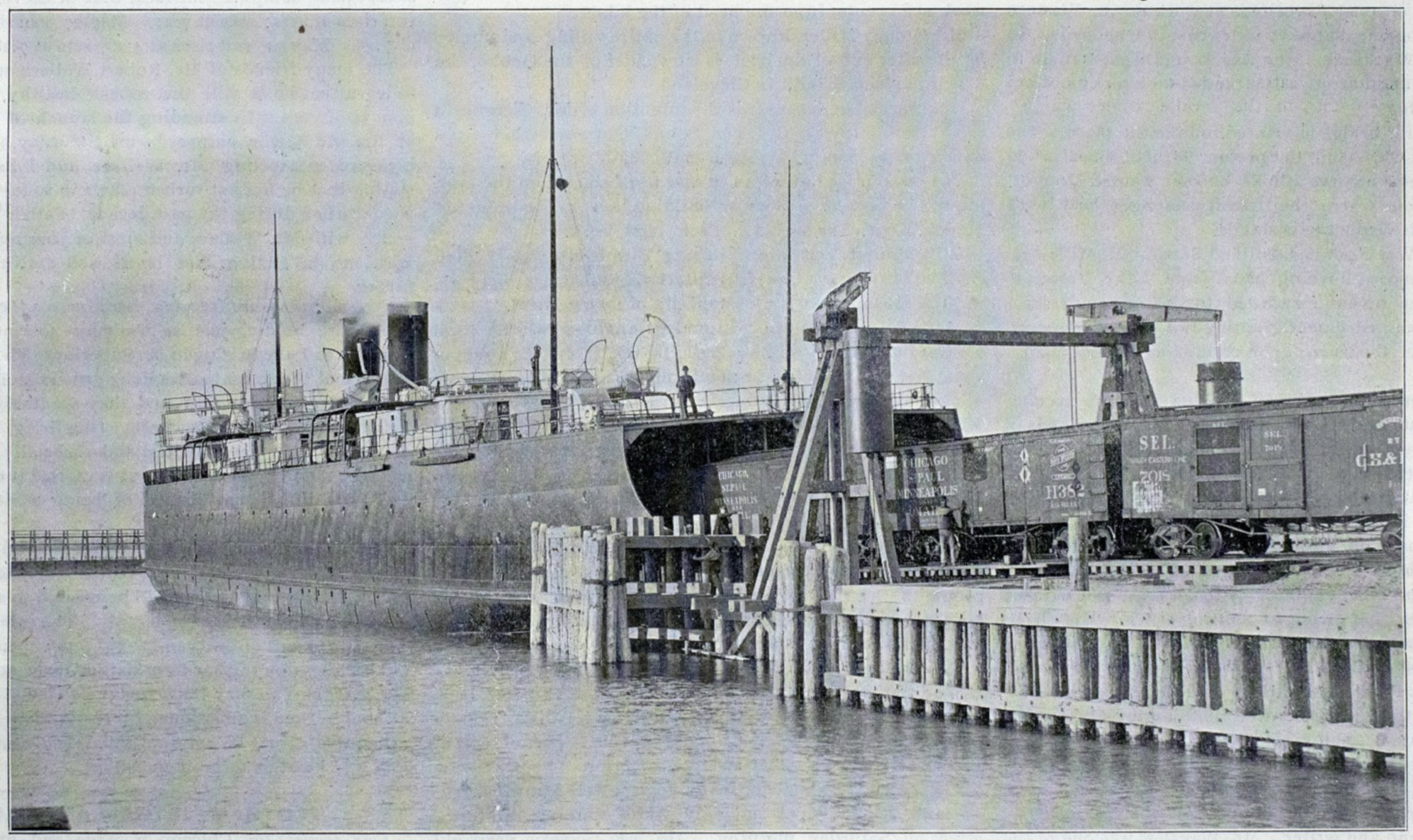
Consul-General Guenther, of Frankfort, March 20, 1901, informs the State Department of a recent improvement in the means of saving life at sea.

It has often happened, says the consul-general, that on account of darkness, life belts could not be seen when thrown to persons who had fallen overboard at night. Buoys with life belts attached and supplied with 8-candle-power electric lights, have been constructed heretofore, but their use was confined to vessels equipped with electric lighting plants, and their heavy weight, requiring three or four men to handle them was a serious handicap.

The new apparatus weighs but thirty-three pounds and produces a light equal to 150-candlepower. The buoy is of a globular form, carries from two to four life belts, and supports a long cylinder of sheet tin having twelve compartments filled with carbide of calcium. These compartments are arranged at different elevations. When the apparatus is thrown into the sea, the water passes through perforations in the bottom of the cylinder and, coming in contact with the carbide, generates acetylene gas. Each compartment is connected with a burner by a pipe, proper valves preventing the escape of the gas other than through the burner. When the volume of gas in the cylinder decreases, hydrostatic pressure opens the valves and allows water to enter the next compartment to generate an additional supply of gas. The gas is lighted electrically, and ignition takes place in about twenty-five seconds after the buoy is thrown into the sea. The flame is protected from the wind by glass and burns steadily and with great intensity for three or four hours.

Cleaning and filling the apparatus requires only a few minutes. The cost of a charge is about 12 cents.

The advantages claimed for the invention, adds Mr. Guenther, are: First, that it can be used on all kinds of vessels; second, that it may be used for general lighting purposes; third, its cheapness and light weight.



RAILROAD CAR FERRY PERE MARQUETTE IN SERVICE ON LAKE MICHIGAN.

Shipping—Bottomry—Necessity.—Where a vessel carrying passengers was so destitute of provisions that passengers and crew were put on short allowance, and very little remained when she reached an intermediate port, and the master was without money, and unable to obtain credit at such port, or to communicate with the owners or charterers within a reasonable time, the case was one of such necessity as justified his giving a bottomry bond on the ship for the money required. The Northern Light, 106 Fed. Rep. (U. S.) 748.

THE LAW OF MAGNETISM.

A SHORT AND CONCISE LESSON ON MAGNETISM AS IT AFFECTS THE MARINER'S COMPASS.

BY CLARENCE E. LONG, MILWAUKEE.

(Arranged for Masters and Pilots on the Great Lakes.)

CHAPTER VII.

CORRECTING COURSES.

To Shape the Course:—Place the bevelled edge of the parallel rulers over the ship's place and the point bound to; then preserving the angle, slide the edge to the nearest compass diagram printed on the chart until it lies on the dot in the center; now read the compass point looking toward the place sought, and that will be the required course. This is called the True or Chart course, as it is measured from the true meridian.

To Allow for Variation:—Easterly Variation is allowed to the Left of a True or Chart Course; and Westerly Variation to the Right. The Variation applied to a True Course gives a correct Magnetic Course.

On some charts the north and south line of the diagram compass is parallel with the meridian line while on other charts the north and south line of the diagram compass forms an angle with the meridian line. In the latter case it proves that the diagram indicates magnetic directions; consequently the course found by the parallel rulers will be steered (unless deviation exists) as the diagram on the chart is a reflection of the compass on board the vessel. On the other hand when the north and south line of the diagram compass is parallel with the meridian, it proves that the diagram indicates true or geographical directions. Lake charts on the polyconic projection (Engineers') have the true compass roses printed thereon, and those published by the Navy Dept., on the Mercator projection, have both the true and the magnetic compass roses, the latter being within the former.

Example.—Supposing that the true or chart course (the course found by a true compass) is North, and the chart tells us, where the ship is situated, there is one point of Westerly Variation, which means that the north end of the compass needle is inclined one point to the west of the true or geographical north. Under these circumstances it will be necessary to steer N. by E. by the ship's compass in order to make a truth north course. If the Variation happened to be Easterly in the above case the vessel would have to steer N. by W. to make true north.

To Allow for Deviation:—The rule for applying Deviation is exactly on the same principle as explained for Variation. Easterly Deviation to the Left and Westerly to the Right. The Deviation should be applied to the Correct Magnetic Course, which gives the Compass Course. The Deviation to be applied should be that which corresponds to the Correct Magnetic Course and not the True Course. Note:—Always apply the Variation before applying the Deviation.

Example:—Supposing the Correct Magnetic course is East, and there is one point of Westerly Deviation to be allowed when the ship's head is on that course; consequently, the compass course to be steered is E. by S. in order to make a Correct Magnetic East course.

Remember this. Applying the Variation to a True Course gives a Correct Magnetic Course and the Deviation applied to a Correct Magnetic Course gives a Compass Course (applying the Deviation to a True Course will not give a Compass Course; it would be nameless, unless there happened to be no Variation, then the True Course would also be the Correct Magnetic course, and vice versa).

The difference between a True Course and a Correct Magnetic course is the Variation, and the difference between a Correct Magnetic course and a Compass course is the Deviation.

RIGHT AND LEFT ON THE COMPASS.

Right and Easterly are one and the same thing when applied to the compass. Right means in the direction that the hands of a watch revolve; or in the direction of the apparent motion of the sun around the earth, that is across the sky from east to west, or left to right. To move to the right around the compass from North you would have to go by way of East, thence to South and from South to West, and from West back to North.

Left and Westerly are just opposite to the above. Left would be against the direction the hands of a watch revolve. Starting from North in the direction of Left you would have to go to West, then South, East and back to North.

A few examples will explain this:

True Course is S. by E.=S.	11° E.	(L. of S.)
Variation	11° E.	allow to the Left (L)
Correct Magnetic Course S.	22° E.	(L. of S.)=S.S.E.
Deviation for S.S.E.	6° W.	allow to the right (R).
Compass Course S.	16° E.	=S. by E. ½ E.

Note:—Two R.'s or two L.'s (right and left) always add. An L. and an R. always subtract.

Example:—The True Course is N.N.E. ½ E., Var. ½ Pt., E., Dev. 1¼ Pt. W. What is the compass course?

True Course is N.N.E. ½E.	=2½ Pts.	R. of N.
Variation ½ Pt. E.	½ "	L. (R. and L. subt.)
Correct Magnetic Course	2 "	R. of N.=N.N.E.
Deviation 1¼ Pts. W.	1¼ "	R. (Two R.s add).
Compass Course	3¼ "	R. of N.=N.E ¾ N.

Remember, that when you come to correcting bearings taken by your compass, which is effected by both Var. and Dev., you will have to allow Easterly Var. and Dev. to the Right and Westerly to the Left, in order to convert a Compass bearing to a True bearing to make it correspond with the chart.

Remarks:—When the Var. and Dev. are of the same name, both east or both west, they may be added together and applied. If the Var. and Dev. are of contrary names they may be subtracted one from the other, and the balance applied in the name of the greater of the two quantities.

(To be continued.)

ACTION AGAINST THE CHICAGO DRAINAGE CANAL.

Benjamin Schurmacher, of St. Louis, has obtained leave to file in the U. S. Supreme Court a supplemental bill in the case of the State of Missouri vs. the State of Illinois, in which the former State seeks to enjoin the discharge of waters of the Chicago drainage canal into the Mississippi river through the Desplaines and Illinois rivers.

Permission also was granted to Hon. Wm. Springer, representing the State of Illinois in this case, to file a demurrer to one paragraph of the bill, and an answer to other portions of it. Mr. Springer sought to have the court indicate a method of proceeding in the matter of taking testimony in the case, but the chief justice declined to make any suggestion on that point. The counsel would, he said, have to make up their own minds. He agreed with a suggestion that a commissioner might be selected after the issues are agreed upon.

Mr. Schurmacher's supplemental bill alleges that the drainage canal channel has been put into operation as was alleged in the original bill it was about to be, and it is further set forth that the Chicago authorities have diminished the diminution of sewage transmitted through the channel from a flow of 20,000 cubic feet per minute for each 100,000 inhabitants of the sanitary district to not exceed 10,000 cubic feet for such time and number. This diminution of water is claimed to be contrary to the Illinois statute authorizing the construction of the canal.

It also is asserted that the effect has been to destroy the water of the Mississippi for drinking and domestic purposes. Much sickness, it is stated, has been caused and will continue to be caused by the pollution unless the use of the canal as a drainage channel is enjoined.

Mr. Springer's demurrer to the paragraph in Mr. Schurmacher's bill concerning the diminution of water in the canal is based upon the plea that this is a matter for the State of Illinois to decide and not one in which Missouri is concerned in any way.

Mr. Springer also asserts that the canal was opened before the original bill was filed, and he denies that the waters of the Mississippi are polluted by the discharge of the drainage canal. He also says the immediate discharge of the sewage of the city of St. Louis into the river is more damaging to the waters than is the Chicago sewage when brought from a great distance.

TOLEDO'S NEW TONNAGE.

Toledo, O., comes to the front this week in having a steel tonnage of 2,716 awarded official numbers by the Bureau of Navigation, Treasury Department, as follows: Steamer Puritan, 1,547 tons, built and hailing from Toledo, and the steel steamer Iroquois, 1,169 tons, also hailing from Toledo. Both these vessels were built at the yards of the Craig Ship Building Co.

SHIPPING AND MARINE JUDICIAL DECISIONS.

(COLLABORATED SPECIALLY FOR THE MARINE RECORD.)

Admiralty Jurisdiction—Maritime Contract—Contract for Cargo Space.—A contract by which a steamship company agrees to furnish cargo space for a foreign shipment of cotton, and the other party agrees to furnish such cotton for shipment on one of the company's vessels sailing late in a certain month, and to pay a stipulated rate of freight for its carriage, is maritime, and an action in personam for its breach is within the jurisdiction of a court of admiralty. Patterson et al. vs. Baltimore Steam Packet Co., 106 Fed. Rep. (U. S.) 957.

Penalty for Delay in Payment of Wages.—On the discharge of a seaman, a dispute having arisen as to the amount due him, the master went with him before a shipping commissioner, who decided in favor of the contention of the master. Held, that such decision, although erroneous, constituted a reasonably "sufficient cause" for withholding the additional wages claimed to exempt the ship and owners from the penalty imposed by Rev. St. § 4529, as amended by Act Dec. 21, 1898 (30 stat. 756), for a failure to pay promptly on discharge. The Alice B. Phillips, 106 Fed. Rep. (U. S.) 956.

Salvage—Fire—Harbor Tugs.—Twenty-three harbor tugs, of the aggregate value of $300,000, extricated from the docks, which were on fire, a steamer worth $2,000,000. The moral certainty of great loss, except for their assistance, was the chief ground for substantial reward. There was little danger to the tugs; the time of service was short, an hour or two, except in the case of a few tugs, which, at the request of the ship, remained by her till the next morning, and there were other tugs present which could not find employment. Held, that $20,000 should be awarded for the service. The Kaiser Wilhelm Der Grosse, 106 Fed. Rep. (U. S.) 963.

Admiralty—Jurisdiction.—Where a steamship company, in accordance with its custom to receive passenger's baggage at its pier for transportation by its steamer, in anticipation of tickets to be obtained and afterwards presented, there receives baggage of a passenger, and gives him a receipt therefor, and he soon afterwards purchases a ticket, and presents it with the receipt, but the baggage cannot be found, admiralty has jurisdiction of an action for its loss; its reception forming part of the maritime contract from the time of the purchase of the ticket. The Priscilla, 106 Fed. Rep. (U. S.) 739.

Right to Recover Bottomry Bond on Loss of Vessel.—The master of a vessel gave a bottomry bond, with the consent of the owner, to secure necessary supplies, and the agent of the owner on the following day, and as a part of the same transaction, executed a bond to the lender, conditioned to pay the amount so loaned, but which did not recite that it was in lieu of the bottomry bond. The vessel was lost at sea. Held, that the lender could not recover on the bond given by the owners, since the latter bond, as a collateral security to the bottomry bond, would only mature on the arrival of the vessel in port. Theo. H. Davies & Co., Limited, vs. Soelberg et al., 64 Pac. Rep. (Wash.) 540.

Salvage—Salvage Vessel Becoming Salvor—Amount of Compensation.—The steamer S. having stranded, the W. Co., as salvor, made a contract to endeaver to get her off and deliver her at N. for sixty per cent. of the value recovered. The contract providing that such company should have the requisite possession and control of the property, and the reasonable use of material belonging to the vessel. Having got her off and made temporary repairs, the company started her for N. in tow of the steam tug M. The tug becoming temporarily disabled, by losing her smokestack and rupturing a steam pipe, it was arranged that the S. should take her in tow to a place 178 miles away, which was accomplished in thirty-six hours. The M. was worth $46,000. The S., which was afterwards taken to N., there sold for $45,000. Held, that while the owner of the S. was entitled to compensation for the service rendered the M., $750.00, besides an allowance for extra coal and oil consumed, was enough; the danger to the M. not being serious, and only the captain and engineer of the S. being aboard her, she being otherwise manned by the W. Co.'s men. The I. J. Merritt, 106 Fed. Rep. (U. S.) 970.

Rescue of Disabled Steamship—Amount of Award.—A steamship worth $150,000, and carrying a crew of thirty-three men, broke her shaft, and lost her propeller, when 197 miles off the Oregon coast. Stormy weather came on, and she was unable to make repairs, or to make a port of safety with the sails she carried. She drifted in the direction of Cape Flattery four days, when she came in sight of a lightship, and subsequently anchored in thirty fathoms of water. Two passing vessels, to which she signaled, attempted to take her in tow, but failed, owing to the parting of the lines and the heavy sea. Subsequently, libelant's tug, a powerful and well-equipped vessel, came to her assistance, and by the prompt and skillful action of the master and crew of the tug she was towed to a port of safety, without injury, arriving the following morning. The service was attended by considerable peril owing to the severity of the storm, which also continued with increasing severity for some days thereafter; and the evidence tended to show, that if the ship had not been rescued that day, she would probably have been lost. On such facts an award for salvage was made, apportioned among the owners, officers, and crew of the tug, amounting in all to $9,175. The Elm Branch, 106 Fed. Rep. (U. S.) 952.

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CLEVELAND, O., MAY 23, 1901.

Go it Morgan! Go it Hill !!!

IT takes a Morgan to teach us how to appropriate tonnage and secure the earnings of a foreign mercantile marine.

WE once more rise to remark that railroad cars are sometimes freighted with freight, vessels carry cargoes to earn freight.

IT IS somewhat gratifying to the RECORD to note that the marine columns of the large daily newspapers are now beginning to recognize the distinction between the words "freight" and "cargo." We thank the Marine News Association, Chicago, for its able assistance to the RECORD in making clear these purely marine terms.

IT NOW looks as if the lake level campaign instituted so vigorously by the MARINE RECORD two years ago, would require to be started all over again. The levels can't be backed up from anywhere below Niagara, but it seems that a few lock gates will soon be necessary to the westward of that locality. Much depends on the rainfall and evaporation as regards transporting a million or two tons of cargo, more or less, during the season of navigation.

THERE seems to be no limit to the increase of the size of battleships. It is now reported that our American naval board of experts will give serious attention to designs for the largest and most powerful warships ever attempted in this country and over 1,000 tons heavier than the greatest vessel ever constructed abroad. It has been believed that the limit of size in the battleship line was reached when Great Britain began the building of 15,000-ton vessels, which are practically duplicated in displacement by the Georgia and Virginia type, now under way, but Admiral Bowles and other officers of the construction board have the opinion that battleships can be built larger, with greater speed and carrying far more formidable batteries.

WE have little or no patience with "the pride that apes humility," nor on the other hand, are our suceptibilities the least bit mollified on noting an overweening pride of ignorance flying off at a tangent to the other extreme. In treating of matters technical, the RECORD invariably strikes straight out from the shoulder in putting the plainest construction possible on the subject matter under temporary consideration. The foregoing evaporation is simply a prelude to the following anent an editorial in our issue of the 16th inst., from one of the best authorities on the subject in the United States. "I wish to express my appreciation and approval of your excellent and business-like editorial on River and Harbor Improvements in your issue of yesterday." Such expressions as the foregoing help along the pen-pusher in his aspirations to strike the keynote as regularly as it is possible.

SHIPPING AND SHIPYARD COMBINES.

There is every argument possible in favor of some of the most recent and extensive combinations of capital in the commercial world. Notably in the line of strictly marine affairs, is the purchase of an active working fleet of high classed steel steamers by the Morgan syndicate, and the formation of a huge company of shipbuilders, by the amalgamation of several Eastern yards under one general directorship.

In the matter of the purchase of the Leyland Line, including the several interests formerly working conjointly with that concern, and the addition of the several other lines, of which we have heard so much of late, the United States, and by this we mean American owners, become possessed of the nucleus of a fleet of cargo steamers in active service with an established trade and prestige second to none in the world's carrying trade. Even with the proviso that the Oporto and Mediterranean connection is to be still maintained by the former owners, and, up until a few years ago, that was the route that the Leyland Line catered to chiefly, our citizens have now secured such a volume of tonnage fit for Atlantic service that the balance of exports and imports carried in American owned tonnage, will soon be found to shoot up to quite a respectable per centage, as compared with the past recent years.

Relative to the combination of shipyards, nothing but good has eventuated from this feature on the lakes, and an immense amount of high classed steel tonnage has been constructed at a minimum cost, while paying the best possible rate of wages to the numerous industries concerned in the output, as well as the more actual and direct labor employed in vessel construction.

Such being the experience in so far as lake shipyards are a factor in the upbuilding of the country's mercantile marine, and we point with some degree of pride to the fleet of Chicago-built steamers put afloat for Atlantic and oversea service, there is no good reason why the same prosperous condition of affairs should not be carried out in a combination of shipyards on the coasts, both east and west, or Atlantic and Pacific, thus working the greatest benefit to a majority by cheapening the cost of production.

In this connection the recent interview published by Louis Nixon, of the extensive Crescent shipyards at Elizabethport, N. J., with regard to the objects and prospects of the great shipbuilding combine recently formed, tends to show that, without any aid from the government, we are at the beginning of an era of expansion in American shipping. Mr. Nixon says in part:

"Great Britain earns $800,000,000 annually by her merchant fleet, while we only carry 8 per cent. of our own freight in the foreign trade. It has been found that shipbuilding and shipowning to be successful must go hand in hand.

"With our coal and steel better and cheaper than the rest of the world, we shall soon build vessels for all the world, as we did when wooden ships were used and forests grew near to the shore.

We who build ships know that events are so shaping themselves that eventually we shall build vessels not only better, but cheaper than our foreign competitors, but we are not content to wait, and as there is a vast amount of work done elsewhere throughout the world, that without a community of interest we cannot now compete for, we have made up our minds that what we can do for ourselves we will do, and this co-operative consolidation is the result.

"If this enables us to build vessels cheaper, quicker and of a better quality than other builders, we shall not, of course, refuse to take orders, but even on current work this consolidation is pronounced by financial experts to be the best industrial yet started in this age of consolidations. Briefly, our policy is to take such work as we can get in the United States (and we already have the enormous sum of $63,000,000 of contracts on our books), and by making specialities of various classes of work at each establishment to be prepared to go into the foreign markets, for a share of the tonnage, both commercial and naval, now built in other countries."

In view of the foregoing, it may be said that the time is not far distant when the oversea commerce of the country will be carried in American bottoms, and the industry again placed in the flourishing condition it maintained half a century ago.

The material is at hand, the active foreign shipbuilders, chiefly British, brought here by various firms and coming of their own accord, are now Americanized, and after becoming accustomed to a superior grade of workmanship, tools, facilities and surroundings are almost ready to be superseded by native talent of exceedingly greater energy and resources, so that, with the advent of a concentration of capital and re-awakened interests in the shipping industry, there is nothing to stop this country from competing with the foreign yards, as outlined by Mr. Nixon, and to which, the finger of advance is clearly pointed as the natural outcome of the present condition of revivifying interest in the production of high classed, steel tonnage, designed and constructed especially with a view to carrying on, not only our own, but the world's oversea commerce, and, also, as a consequence, providing warships for nations desiring the superlative in construction at a minumum cost, within a limited time after placing their orders.

A SECOND PROPOSED COMPASS CARD.

Criticism is invited by the Hydrographic Office regarding a second proposed compass card devised, presumably, for adoption in the Navy as well as for the mercantile marine.

We are not informed as to whether this second attempt should also be credited to Lieut.-Commander S. W. B. Diehl, U. S. N., Superintendent of Compasses, or otherwise, but assume such to be the case.

The card now in general use is marked to points and so as to be visible in fine weather at a distance of several feet, a very necessary proviso for the helmsman, there is also a minute graduated circle beginning at north and marked around both ways to 180°, or to zero at south, which for all practical purposes might just as well be omitted from the card entirely.

The first change proposed by the Superintendent of Compasses, U. S. N., divided the circumference of the card into 360 degrees marked continuously to the right, from zero at north, to 90° at east, 180° at south, 270° at west, and 360° at north, and, so that the new "sea clock" would show nothing but the degrees. It is believed by officers of the Navy interested in the new card that the proposed markings would result in far greater accuracy in navigation in relation to the compass.

The second proposed form of card is an adaptation of the old and new combined, with an inner graduated circle marked zero at the polar points, in lieu of the degrees decreasing both ways from the south point and increasing from the north.

This attempted revision in marking the compass card is said to lessen the chances of error in the application of deviation to compass courses. Conversion of points into degrees and the reverse, also that boxing the compass would be a matter of a few minutes' instruction to the layman of average intelligence. Sailing directions would be simplified and all work in relation to the compass would be facilitated.

Now! With all due regard for Commander Diehl's evident desire to facilitate the work of his colleagues in the navigational art, naval or mercantile, we can not but pronounce his views regarding the proposed changes in the compass card as a work of supererogation, utterly, entirely and completely uncalled for, and all to no purpose. Furthermore, we strongly advise the Hydrographic Office, through its Superintendent of Compasses, to permit the ordinary compass card to continue in its present form, and to still allow it to be considered simply as an indicator, to the helmsman as well as the layman of average intelligence, especially as they are never called upon to apply deviation, convert points into degrees or the reverse, or deteriorate their mental ability by poring over sailing directions.

It is away and beyond our most sane comprehension why this apparently irrepressible twaddle regarding the markings of a compass card should have traveled even in Europe, except it was for the common, ordinary taste of producing an illustration aquatic, accompanied by the stereotyped wording sent out by the department. In a word, we would have had more patience in touching upon the gainless subject, if the Commander had even proposed the splitting of degrees in shaping or giving a course to steer, such as substituting the arc of a sextant on the compass card and providing the wheelsman with a powerful magnifying glass to steer by; however, as reasons for shunting the puerile suggestions are but too plentiful, we consign the illustrated diagramed bosh to the waste paper basket with a feeling that the time looking at it has been irreparably lost.

Capt. Bernier has received letters from Dr. Nansen, of Christiania, and Professor Nordenskioldt, of Sweden, the renowned Arctic explorers, approving of his plan for drifting from Behring Strait with the ice flow.

LAKE ERIE LEVELS.

Lieutenant Colonel W. P. Anderson, Chief Engineer of the Department of Marine and Fisheries, Ottawa, Canada, who has just returned from a tour of inspection on the upper lakes, reports that the waters of Lake Erie are lower than ever before, due to a series of dry seasons, the decline made by the power development works at Niagara Falls, and the fact that dredging in Tonawanda canal has made it easier for water to escape from the lakes.

Colonel Anderson thinks it is imperative upon the United States authorities to adopt some remedial measures at an early date, otherwise the towns will experience a serious obstruction to navigation.

In this connection we quote the views expressed by Col. Anderson relative to the projected Lakes' Erie–St. Clair canal, in which he says:

"There is no question that a canal of this kind would have a tendency to lower the levels of Lakes Huron and Michigan, and any such lowering would be a serious calamity to the shipping interests. I think nothing but good can come of the appointment of Col. Lydecker to report upon the project from an engineering point of view, but I feel that something ought to be done. I believe that a joint commission of engineers from both countries should be appointed to consider the general question of lake levels. The power canal at the Sault, the Chicago drainage canal and the deepening of the channels in the Detroit and Niagara rivers, are all improvements that are calculated to affect the levels of the lakes, and where every inch of water is a consideration to the large freight vessels now employed, steps should be taken to prevent any further lowering of the lakes. This can only be attained by the co-operation of both governments, and after a great deal of engineering investigation has been done."

As an offset to the foregoing, we quote from an interview with Major W. L. Fisk, Corps of Engineers, U. S. A., stationed at Detroit; when shown Col. Anderson's latest statement, the Major said:

"Mr. Anderson has failed to take into account the fact that the ice jam has held the water back from the lake and prevented it assuming its normal level. The water has been simply held in check in Lake Huron and I believe conditions in Lake Erie will be at their normal in a short time.

"All the water that goes out through the Tonawanda canal and the power development works at Niagara has to go over the Falls anyway, and this makes no difference, I think, with the level. I do not think Lake Erie will be lowered in future seasons, unless the rainfall becomes markedly less."

AFTER A SUPERVISING INSPECTOR OF STEAMBOATS.

A movement is said to be on foot in Ohio to depose Maj S. R. Crumbaugh, Supervising Inspector of Steam Vessels of the Pittsburgh and Cincinnati district, says the Pittsburg Chronicle Telegraph. Nothing is known about the matter in Pittsburg except the rumors that are being circulated. It is said that the charges made by Ohio politicians are that Maj. Crumbaugh is not a competent man, but this is laughed at by Pittsburg rivermen.

The other charge made against Maj. Crumbaugh is that he is not a resident of the district over which he has control. The last charge rivermen admit is true. Some time ago the pilots and Maj. Crumbaugh had some differences, but generally Maj. Crumbaugh is liked. The boat owners speak in the highest terms of him. Maj. Crumbaugh, however, is not a practical steamboatman and never followed the rivers for a living. He was a teacher in a Kentucky school when he received the appointment. It was the first time that a supervising inspector was ever appointed to fill that place who did not reside in the district.

At the time his appointment was announced, some dissatisfaction was noticeable, but as the man became acquainted with the rivermen, this dissatisfaction disappeared. It is thought that if the Ohio politicians are after Major Crumbaugh's scalp, they are going after it in the interest of some Ohio man. The position pays $3,200 a year, and there is little work attached to the office.—The Waterways Journal, St. Louis.

Rights of Charterer and Owner of Tug to Salvage.—The charterer, and not the owner, of a tug is entitled to the salvage earned; the charter being one of demise, under which the charterer received the bare boat, and agreed to return her in as good condition as received. The Kaiser Wilhelm Der Grosse, 106 Fed. Rep. (U. S.) 963.

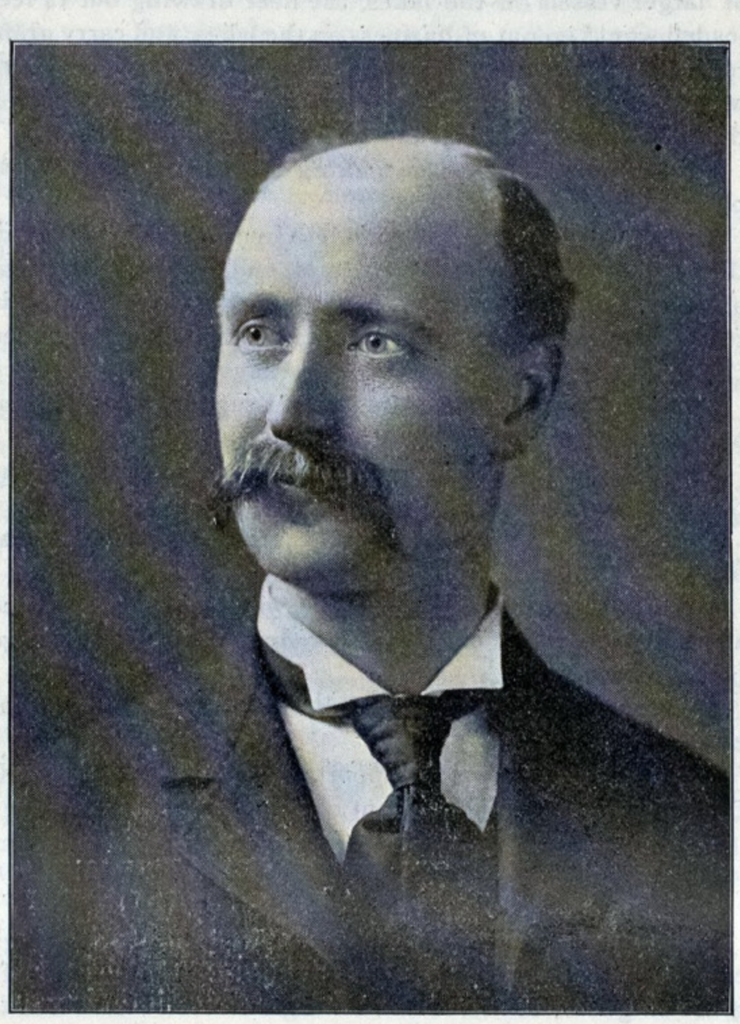
WIRELESS TELEGRAPHY FOR LAKE BOATS.

W. L. Mercereau, superintendent of steamers of the Pere-Marquette Line, is planning to install wireless telegraphy on all the steamers of the line, seven in number. He will watch the race between the steamers City of Erie and Tashmoo in June, where it is said wireless telegraphy is to be used in reporting the progress of the boats. Mr Mercereau will locate the land stations for his line at Milwaukee, Ludington and Manitowoc.

This wireless telegraphy will supplant the carrier pigeon service which had been planned for the boats, and will be the first practical use of the Marconi system on the lakes. That is, providing it eventuates in due course.

MAKING LAKE AND LAND.

A report from Two Rivers, Wis., says that for the past fifteen years the beach along Lake Michigan in that locality has been "making" more each year and has added at least several hundred feet to the land. About three miles south of Two Rivers, at what forms the bay near Manitowoc, the land has been washed away gradually and it begins to appear that the soil which is being carried away from that stretch is being washed upon the shore at Two Rivers. The lake shore has been carried away to such an extent at the little Manitowoc river that the whole strip of land, which was more than 300 feet from the water's edge, has been washed away and the waves from the lake strike the bridge crossing the river. It is a question of but a very short time before a south-east gale will cause waves sufficiently large to carry the bridge away, unless something is done to retard the erosion.



MR. ROBERT LOGAN, C. E. AND N. A.

The twin screw, steel, railroad car ferry Pere Marquette 17, and the steel cargo steamer Frank H. Peavey, launched on Saturday and Wednesday at Cleveland and Lorain, respectively, were built under the superintendence of Mr. Logan in the interests of the owners.

THE report of the Trial Board on the recent performance of the torpedo boat Bailey, in Long Island Sound, is in the highest degree favorable. The vessel made an average of 30.2 knots for two consecutive hours, and the machinery and boilers operated in the most satisfactory manner. No trouble was experienced with machinery or auxiliaries. The Bailey was built by the Gas Engine aad Power Co., Morris Heights, New York. The speed for which the Bailey was designed is 30 knots, and the horse-power necessary to drive the boat at this speed is 5,600. All of these anticipations have been exceeded in some respect, and the boat will be at once prepared for transfer to the Government. This is the first of the 235-ton boats to be completed, and considerable jubilation is being indulged in in consequence.

LAUNCH OF THE FRANK H. PEAVEY.

The steel cargo steamer Frank H. Peavey was successfully launched from the Lorain yards of the American Ship Building Co. on Wednesday.

The new craft is the first of a fleet of four steamers building at Lorain for the Peavey syndicate. The event was witnessed by a large crowd. The launching party which left Cleveland on two special cars over the Cleveland-Lorain electric line, was one of the largest that ever visited Lorain to witness a launch. Mrs. George W. Peavey performed the christening ceremonys. She was accompanied on the stand by Mr. Peavey, Robert Wallace, Gen'l-Manager J. C. Wallace and R. C. Wetmore, secretary and treasurer of the shipbuilding company.

The new steamer is 450 feet over all, 430 feel keel, 50 feet beam and 28½ feet deep. She will have quadruple expansion engines, cylinders 15, 23¾, 36½ and 56 inches, with a common stroke of 40 inches. Steam will be furnished by two Babcock & Wilcox water-tube boilers. She is fitted with the "Providence" windlass and capstans, the Alley & McLellan steam steerer (Scotch patent), furnished by the Detroit Ship Building Co., an electric light installation and a series of six independent pumps of the Blake type. She has steel pole spars, a limited passenger accommodation and will carry 7,000 tons on a draft of 18 feet. Mr. Robert Logan, Cleveland, superintended her construction for the owners.

It is expected that the Peavey will be ready for service early in July. Estimated cost $350,000.

Among the invited guests at the launching were: Mr. and Mrs. Frank H. Peavey, Mr. and Mrs. J. W. Raymon, Mr. and Mrs. Frank Chamberlain, Mr. and Mrs. Frank Prince of Minneapolis, Mr. and Mrs. Carl Wright of Des Moines, Mr. and Mrs. W. L. Brown, Mr. J. M. Steudebaker and daughter of Chicago, Mr. and Mrs. A. B. Wolvin of Duluth, Mr. and Mrs. W. E. Fitzgerald of Milwaukee, Mr. A. L. Johnson, Mr. and Mrs. Talbell, Mrs. Garrett, Mrs. Charles L. Hutchinson, Miss Clara LaMarche, Mrs. E. E. Sanders, Mrs. James C. Wallace, Mr. R. L. Ireland, Mr. William Sutten, Mr. Bert Dericx, Mr. Robert Logan, Mr. F. C. LaMarche, Mrs. Robert Wallace, Mr. and Mrs. James H. Hoyt, Mr. and Mrs. W. H. Newman, Mr. H. G. Dalton, Mrs. Wilbert Bailey and Mr. Edwin S. Mills of Cleveland. After the launching the guests were banqueted by the shipbuilding company. The second of the Peavey boats will be launched in three weeks, and will be christened George W. Peavey.

TO CHRISTEN THE MAINE.

The governor of Maine has been invited to select a lady to christen the battleship Maine which is to be launched from the Cramp shipyards in Philadelphia on May 30. Among the ladies suggested for the christening are the daughter of Capt. Sigsbee, who commanded the original Maine when she was destroyed in Havana harbor; the daughter of Lieut. Blundin, who was officer of the deck on that occasion, and ladies of the families of the other officers who were attached to the ill-fated vessel, including some of those who lost their lives in the explosion.

LETTERS AT DETROIT MARINE POST OFFICE.

MAY 22, 1901.

To get any of these letters, addressees or their authorized agents will apply at the general delivery window or write to the postmaster at Detroit, calling for "advertised" matter, giving the date of this list and paying one cent.

Advertised matter is previously held one week awaiting delivery. It is held two weeks before it goes to the Dead Letter Office at Washington, D. C.

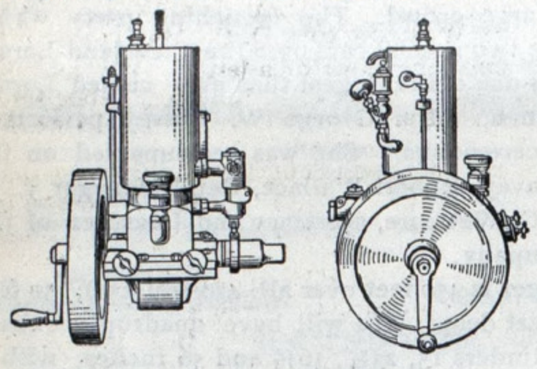
Brant Aug., Geo. Stone	Nelson Chas., Sitka
Callisson Geo., Miami	Ryan H. W., Sacramento
Cooper Florence	Snowden John C.
Conner Alfred, Lindsay	Simmons Dora L.
Gibson Chas.	Sutherland D.
Johnson A.	Simpson D. T., Tampa
Jessen Gus.	Wallis Rolla, Roby
Kelley Geo.	Williams C. M., Quito
Neigebauer Gus. 2, Hanna	Wilds Jno. W.

F. B. DICKERSON, P. M.

Bemer S. Pague, appointed local forecast official of the Weather Bureau in Detroit in March, 1900, has been assigned to duty in Washington. Mr. Pague's promotion from Detroit to the headquarters of the Weather Bureau comes as a reward for 19 years of faithful service in which he has made a record of accuracy in his forecasts that is excelled by no other man in the service. For a number of years he was on duty at Portland, Ore., where, in a contest held by the Government in 1894, he led every forecaster in the United States in the percentage of correct forecasts that he made during a given period.

Truscott

VAPOR MARINE MOTORS.
HIGH GRADE PLEASURE CRAFT



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ST. JOSEPH, MICH.

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from 80 to 365 days and nights without attention, and can be seen a distance of six miles. . . . . .

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160 Broadway, New York City.

DEBATE IN THE DOMINION HOUSE OF COMMONS

ADVOCATES OF A NATIONAL PORT—MONTREAL, QUEBEC, HALIFAX OR ST. JOHN?

During a recent debate in the Dominion House of Commons, Ottawa, Mr. Bickerdike, of Montreal, brought up the transportation question. He complained that during a former discussion some members had spoken of Montreal as a port of the past. It was true the Grand Trunk had forsaken Montreal and made the foreign port of Portland their terminus. The papers, when brought down, would show that not a single dollar of public money had been spent in Montreal harbor. The Government had guaranteed interest on certain bonds, but the interest had always been promptly paid. He went thoroughly into the subject of improved aids to navigation, and pointed out where new lighthouses and fog alarms were needed.

Dr. Roddick, referring to the question of insurance by the St. Lawrence route, said that, whereas the rate to Baltimore was 4½ per cent., the rate to Montreal was 9, 10 and 11 per cent. On a ship worth $500,000, making five trips per season to Montreal, this would make a difference of $35,000 in the year. He also read the evidence of sea captains, showing that the existing Admiralty charts of the Gulf of St. Lawrence were incorrect as to soundings, and they advocated a new survey of the route and a further examination of the currents. Dr. Roddick urged the Government to take over the port of Montreal and make it a free port. The present high dues militated against the harbor of Montreal in competition with Newport News, Baltimore and other free harbors in the United States.

Mr. W. C. Edwards thought Montreal had been liberally dealt with. There was no doubt about getting grain and other products to Montreal; the difficulty was in obtaining shipping to carry the cargoes to the countries importing. If the route were improved, the insurance difficulty would disappear. He held the opinion, however, that large expenditure on the St. Lawrence river was so much more wasted. The city of Quebec was the natural port of the St. Lawrence, not Montreal. The channel between Quebec and Montreal would never be safe for large vesssels.

Mr. Gallery (St. Anne's division of Montreal) said the Government had spent five or six millions on Quebec harbor, and it was not a national port yet. In the past few years 20 million dollars had been spent on the canal system, but the harbor of Montreal had not got a five-cent piece.

Mr. Dobell spoke for Quebec and the necessity of more elevators, so that when we got winter navigation, which we would certainly get in the new future, that port would be in a position to handle a large grain trade. It was discrimination in insurance rates that kept the St. Lawrence trade back, Mr. Dobell said. He advocated making the route safe by additional aids to navigation. He added that as a winter port Quebec could successfully compete with Portland.

Mr. Gourlay (Colchester, N. Y.): "The whole solution is to double track the Intercolonial Railway and lower the rates to Halifax."

Mr. Charlton strongly favored Quebec as the St. Lawrence terminus of ocean navigation. He expressed doubts as to whether the Ottawa and Georgian Bay Canal would materially reduce the cost of grain transportation below the rate at which Mr. Booth was now carrying grain by rail from Parry Sound. Dismissing, therefore, the consideration of an expenditure of $100,000,000 for this canal, and bearing in mind the new 14-foot system, the problem was changed. The use of larger vessels on the lakes, the fleet drawing but 14 feet loaded would go out of business on the lakes, and carry grain from Port Colborne to the seaboard. As for the national port, it should be Quebec, which was destined to become the commercial, military and social metropolis of Canada.

Mr. Prefontaine urged the making of Montreal the national port of Canada.

Mr. Ganong advocated a complete hydrographic survey of the St. Lawrence and Atlantic ports, and the establishment of naval stations, one in the west and two on the Atlantic coast, to train the seafaring population who now went to the United States for employment in the navy.

Mr. Brock agreed with Mr. Monk's suggestion of a non-political commission on transportation.

Mr. Wright, of Renfrew, urged the advantage of the Georgian Bay canal.

Mr. Ross, of Victoria, advocated Halifax as the national port.

Mr. W. F. MacLean asked how it was, if all this was true about Halifax, that more of the trade of Canada did not go through that port.

Mr. Ross laid the blame to high freight rates on the Intercolonial.

Mr. Fowler followed, in support of St. John, and Sir Louis Davies moved the adjournment of the debate.

THE MOON AND THE WEATHER.

(MONTHLY WEATHER REVIEW.)

The relations between the moon and various meteorological phenomena have been studied for a century past with great diligence, but hitherto nothing has been discovered to confirm the popular belief that the weather has a dependence upon, or even an indirect relation with the condition of the moon. The origin of this belief in the lunar influence can be traced back to Arabia and the astronomers of Assyria and Chaldea, and it is maintained in various forms by all peoples that use the Arabic language or inherit the old Arabic folk lore. We know of no recent investigation into the connection between the moon and the Arabian weather, but all studies bearing on European or American weather show that the lunar influence is inappreciable. We believe that the only plausible exception to this statement is to be found in the studies of Mons. A. Poincare (an engineer and meteorologist of Paris, and not to be confounded with Prof. H. Poincare, the eminent mathematician). His study of the international daily charts of the Northern Hemisphere, published by the United States Signal Service, seems to indicate that when the moon is far south of the equator, it has an appreciable influence in causing a general movement of the atmosphere southward, and vice-versa when she is north of the equator; but this movement is only appreciable when we take the average barometric pressure for several days or a week; it is essentially a fortnightly tidal wave, and is not known to have any apparent influence upon the temperature, cloudiness, rainfall, or wind. It cannot, then, be spoken of as an influence of the moon upon the weather.

The students of lunar influences are at present rejoicing in the patronage of a wealthy Russian railroad engineer, Mr. Nicolai Demtschinsky, of Torbino, Russia, who has flooded the scientific world with his prospectus and the first few sample numbers of a journal devoted to the exact prediction of the weather by means of the lunar influences.

The study of the influence of the moon on the atmosphere is certainly legitimate, but the study of the influence of the sun is also important, and it would be suicidal to neglect it. At the present time the trend of modern physics is to show that the sun's radiation produces all the thermal and most of the electric and optic phenomena of the atmosphere and that the modification introduced by the moon is scarcely worthy of consideration. The new journal states that—

It aims to be the depository for all information upon the question of athmospheric ebb and tide, including therein, first, the influence of the moon on the atmosphere, and second, the investigation of the upper strata of the atmosphere.

But, of course, every scientific journal is willing to publish investigations on these subjects. Investigations conducted by rational methods are precisely what is meant by science. All that has hitherto been found out about lunar influences and the upper strata of the atmosphere has already been published in scientific journals and memoirs. If any one in the United States has anything worthy of publication on this subject, he can make it known in the columns of the Monthly Weather Review or the American Journal of Science even more easily than by sending it to Torbino, Russia. In fact, we cannot but suspect that most of the articles published in a miscellaneous way had already been rejected by the editors of recognized scientific journals as containing assumptions and statements directly contrary to the known laws of nature. One may have the best of observational data, and yet go far astray when he attempts to reason upon it. The data that has been furnished to Mr. Demtschinsky by the Chief of the Weather Bureau during the past few years, and which is now quoted in his monthly journal, was communicated for his information, and the reader should not infer from the text of the journal that the Weather Bureau has any reason to adopt new doctrines that are contrary to observed facts and scientific principles.

VISIBLE SUPPLY OF GRAIN.

As compiled for THE MARINE RECORD, by George F. Stone, Secretary Chicago Board of Trade.

CITIES WHERE STORED.	WHEAT. Bushels.	CORN. Bushels.	OATS. Bushels.	RYE. Bushels.	BARLEY Bushels.
Buffalo	1,910,000	865,000	1,169,000	52,000	285,000
" afloat	.....	.....	.....	.....	.....
Chicago	8,722,000	5,597,000	2,875,000	195,000	165,000
" afloat	.....	.....	.....	.....	.....
Detroit	176,000	199,000	1,000	8,000	.....
Duluth	8,438,000	4,367,000	1,183,000	348,000	74,000
" afloat	.....	.....	.....	.....	.....
Fort William, Ont.	1,990,000	.....	.....	.....	.....
Milwaukee	550,000	677,000	211,000	17,000	17,000
" afloat	.....	.....	.....	.....	.....
Port Arthur, Ont.	260,000	.....	.....	.....	.....
Toledo	286,000	518,000	200,000	1,000	1,000
Toronto	48,000	.....	1,000	.....	60,000
On Canals	224,000	17,000	510,000	61,000	.....
On Lakes	3,103,000	1,623,000	428,000	102,000	60,000
On Miss. River	130,000	15,000	.....	.....	.....
Grand Total	42 498,000	15,913,000	10,724,000	862,000	918,000
Corresponding Date, 1899	46,263,000	15,227,000	6,386,000	1,118,000	829,000
Increase	.....	.....	.....	.....	199,000
Decrease	3,263,000	1,425,000	725,000	101,000	.....

While the stock of grain at lake ports only is here given, the total shows the figures for the entire country except the Pacific Slope.

THE YACHT CONSTITUTION.

(From the Scientific American.)

The considerable lightening of the hull of Constitution, (which be it remembered, has been accompanied by a decided gain in strength) has been secured by a radical change in the method of framing. The usual system in yacht construction is to use shallow transverse frames, a few inches in depth, at intervals of 20 to 22 inches, throughout the whole length of the yacht. This is the system adopted in Independence. It is this framing that holds the hull to form, by resisting the transverse bending and crushing stresses; while the longitudinal stresses are taken up by the plating, assisted by two or four lines of stringers, as the case may be, by far the greater part of the longitudinal strains, however, falling upon the plating itself. Hence the latter must be made of greater weight than is actually necessary to enable it to act as the mere skin clothing of the frames. Herreshoff's innovation consists in running the framing of the yachts in both directions, using deep belt frames of an I-beam section for the transverse system of framing, and associating them with a system of longitudinal T-bar and angle-iron framing, which serves at once to take up a large proportion of the longitudinal strains which ordinarily fall upon the plating, and so enables the weight of this plating to be very materially reduced. The transverse belt frames and the longitudinal framing are so arranged with regard to the width and lengths of the plating that the butt joints meet upon the frames, and the seams follow the longitudinal T-irons, thus doing away altogether with the weight of the washers and liners necessitated in riveting up a boat built in the conventional way.

Judged from an engineering standpoint, this is a far more scientific distribution of the material to meet the special strains to which the hull of a yacht is subjected, particularly in a seaway. Just how great is the saving in weight is shown by the fact that although the superficial area of the Tobin bronze plating on Constitution is greater than the superficial area of the bronze on Independence, the sheer strake in the latter being of steel, the total weight of the bronze plating actually laid on the Boston boat is a fraction under 30 tons, while the total weight of the plating in Constitution is slightly under 22 tons. Moreover, it must be remembered that this difference of 8 tons may be put into the keel without calling for a pound more of displacement, or the increase of a single square foot of wetted surface. This is a clear gain due to good engineering; and surely the yacht designer who would dare to use 6-32-inch plating on the topsides of a 90 footer is entitled to all the gain in power and speed that are coming to him. Just here it may be well to state that no little of the credit of these successful results is due to that remarkable material Tobin bronze (the invention of a United States naval officer whose name it bears) which has come to be looked upon as an indispensable material for the plating of our American cup defenders. Not only does it take on a wonderfully smooth polish, but it preserves it indefinitely; while it has the further invaluable quality of showing a tensile strength in the test specimens that is only a few pounds under 40 tons to the square inch.

L. BOYER'S SONS, 90 Water Street, New York, are getting out drawings for two boilers to go into a yacht of 200 feet in length that is to make 25 knots an hour. Each of these boilers will have 67 square feet of grate area and 3,100 square feet of heating surface; weight of boiler, 28,725 lbs.; weight of water, 5,400 lbs.

SUNS'S AMPLITUDES.

The following approximate amplitudes of the Sun's rising or setting will be given each week in this column during the season of navigation. A second bearing may be taken by compass at sunset, by reversing the east bearing given for the nearest latitude, as the change in declination for a few hours makes but a slight difference in the true bearing of the Sun's setting. The bearing may be taken when the Sun's center is on the horizon, rising or setting. The elements which may be obtained by taking these amplitudes are the quantities known as local attraction, variation and deviation, or the total difference between compass and true, or geographical bearings.

LAKE ERIE AND S. END LAKE MICHIGAN, LAT. 42° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
May 23	E. 28° N.	= N. 5½ E.	= N. E. by E. ½ E.
May 26	E. 29° N.	= N. 5⅜ E	= N. E by E. ⅜ E.
May 30	E. 30° N.	= N. 5¼ E.	= N. E. by E. ¼ E.

LAKE ONTARIO, S. END HURON AND CENTRAL PORTION LAKE MICHIGAN, LAT. 44° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
May 23	E. 29° N.	= N. 5⅜ E.	= N. E. by E. ⅜ E.
May 26	E. 30° N	= N. 5¼ E.	= N. E by E. ¼ E.
May 30	E. 31° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.

N. END LAKES HURON AND MICHIGAN, LAT. 46° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
May 23	E. 30° N.	= N. 5¼ E.	= N. E. by E. ¼ E.
May 26	E. 31° N.	= N. 5⅛ E.	= N. E. by E ⅛ E.
May 30	E. 32° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.

LAKE SUPERIOR, LAT. 48° N.

Date.	Amplitude.	Bearing P'ts.	Bearing Comp.
May 23	E. 31° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.
May 26	E. 32° N.	= N. 5⅛ E.	= N. E. by E. ⅛ E.
May 30	E. 34° N.	= N. 5 E.	= N. E. by E.

With a compass correct magnetic, the difference between the observed and true bearing or amplitude will be the variation for the locality. Should there be any deviation on the course the vessel is heading at the time of taking the bearing, the difference between the observed and the true amplitude after the variation is applied will be the amount of deviation on that course If the correct magnetic bearing is to the right of the compass bearing, the deviation is easterly, if to the left, the deviation is westerly.

THE ALGOMA STEEL CO.

The Ontario Gazette announces the incorporation of the Algoma Steel Co., with a capital of $20,000,000, and head offices at Sault Ste. Marie. This is the new enterprise which has been talked of for some time. In addition to the manufacture of iron, steel and nickel and their products for all purposes, the company is authorized to manufacture charcoal and coke and to deal in wood and its products, and to construct and acquire vessels. The provisional directors are: E. V. Douglas, W. K. Stager, J. S. Freeman, of Philadelphia; F. H. Clergue and H. C. Hamilton, Sault Ste. Marie.

NOTICE TO MARINERS.

LIGHT-HOUSE ESTABLISHMENT.
OFFICE OF THE LIGHT-HOUSE INSPECTOR, 11TH DISTRICT,
DETROIT, MICH.

OUTER ISLAND LIGHT STATION, WISCONSIN.

Notice is hereby given that the revolving apparatus of the Outer Island Light, Lake Superior, Wis., is running irregularly and the characteristic of the light, viz: flashing every 90 seconds, can not be depended upon.

Notice will be given when the usual characteristic of the light can be depended upon.

By order of the Light-House Board.

J. C. WILSON, Commander, U. S. N,
Inspector 11th District.

TREASURY DECISIONS RELATING TO SHIPPING.

NAMES OF VESSELS.

Collectors of customs should discourage the giving of names to vessels which are unduly long, or difficult to spell or to pronounce.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION,
WASHINGTON, D. C., May 13, 1901.

SIR: I transmit herewith a copy of a letter dated the 10th instant, from J. B. Bates & Co., by J. Perry Bates, for a change in the name of the schooner Captain George W. Naghtin to Berwyn.

The vessel's rig has been altered and the owners state that the present name is so long and hard to understand and to pronounce that it is desirable it should be changed to a name more simple.

Under the circumstances, the Bureau will consider an application for the change forwarded through your office and accompanied by the evidence provided for in articles 3 and 4, regulations of 1869, and the decision therein cited.

Collectors of customs should discourage, in the first instance, the giving of long and undesirable names to vessels.

Mr. Bates has been referred to you.

Respectfully, E. T. CHAMBERLAIN, Commissioner.

Collector of Customs, Chicago, Ill.

APPRENTICES.

The act of March 3, 1891, requires the carrying of one apprentice, such as is therein described, for each 1,000 tons, etc., on vessels enjoying the benefit of the act.

TREASURY DEPARTMENT, BUREAU OF NAVIGATION,
WASHINGTON, D. C., May 13, 1901.

SIR: This office is in receipt of your letter dated the 22d ultimo, submitting an inquiry as follows:

Will cadets or apprentices having complied with the act of March 3, 1891, in all particulars, and wishing to re-ship in the same steamship or in one of the steamships belonging to the same company after reaching the age of 21 years, be in compliance with the law?

The act provides that said vessels shall take as cadets or apprentices one American-born boy under 21 years for each 1,000 tons gross register and one for each majority fraction thereof.

The Post-Office Department under date of the 9th instant stated:

That it might be implied that it was the intent of Congress that cadets or apprentices should remain in the service long enough to meet the requirements of the act, to-wit, to educate them in the duties of seamanship, hence, might re-ship after reaching the age of 21 years.

And, also, that the law seems to be mandatory as to the number of cadets or apprentices under 21 years of age to be carried on each steamship, regardless of the number over 21 years of age that may be completing their education on the same steamship.

Please be governed accordingly.

Respectfully, E. T. CHAMBERLAIN, Commissioner.

United States Shipping Commissioner, San Francisco, Cal.

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BAUSCH & LOMB-ZEISS
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Used by the Armies and Navies of the World.
Invaluable for Tourists, Sportsmen and Every-day Use. Booklet Free.
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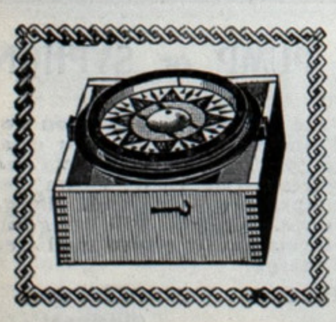

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Best Quality PITTSBURGH COAL furnished at any time during Day or Night.

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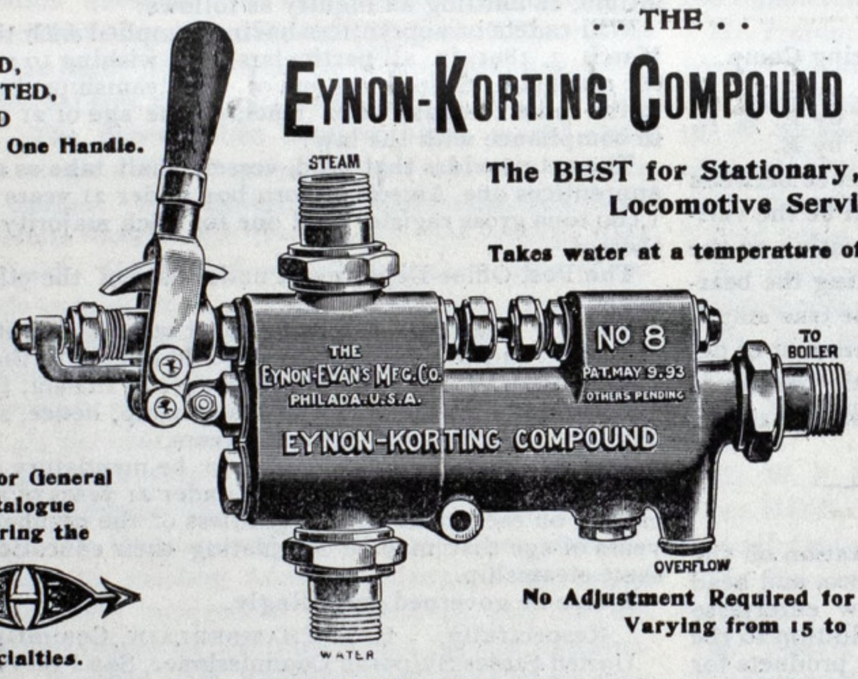
STARTED, REGULATED, STOPPED With One Handle.

The BEST for Stationary, Marine or Locomotive Service.

Takes water at a temperature of 150 degrees.



Will Lift Water 24 Feet.

Has a Greater Range than any other Injector.

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No Adjustment Required for Steam Pressures Varying from 15 to 300 Lbs.

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SERVICE—DAY OR NIGHT.

All Adjustments Promptly and Accurately executed. Estimates and Prices given upon application. All work guaranteed to be absolutely first-class.

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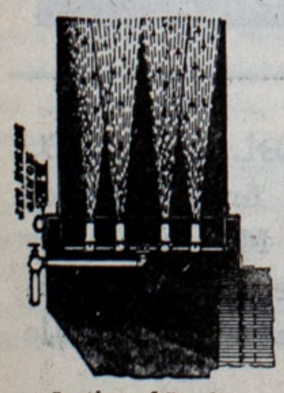
67 in Use. 50 to 200 lbs. Pressure.

Cut on the right shows section of Jet Castings which are attached to Spider in stack as shown in cut on the left. 15 to 25% increase in power guaranteed.

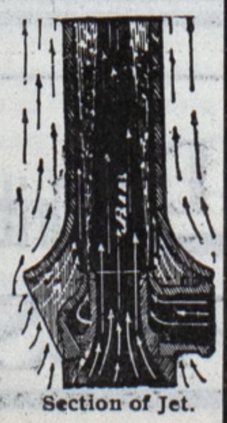
All sizes 12" to 8 ft. have been installed.



Section of Stack.

H. Bloomsburg & Co.,

112 35th Street,
NEWPORT NEWS, VA.



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Fuel scow with elevators and discharging spouts. Storage of 650 tons. Discharges 150 tons an hour into steamers while unloading cargo.

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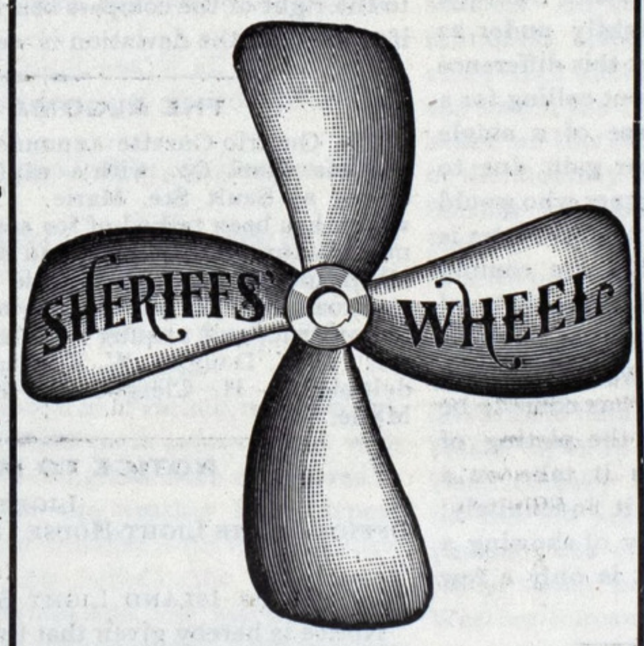

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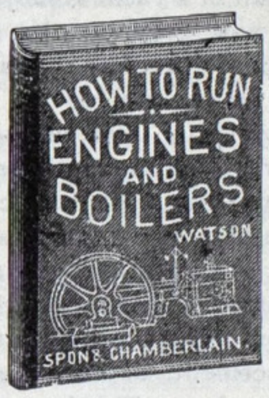

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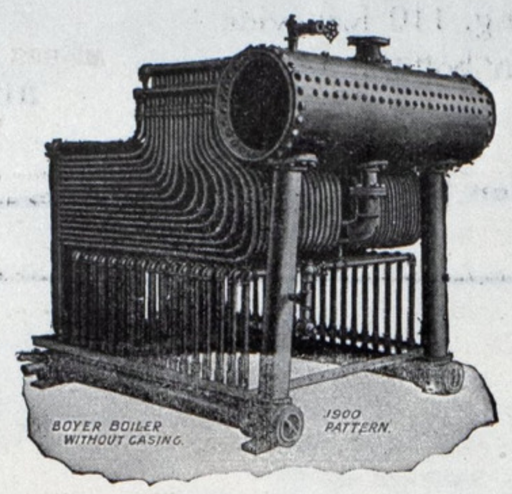

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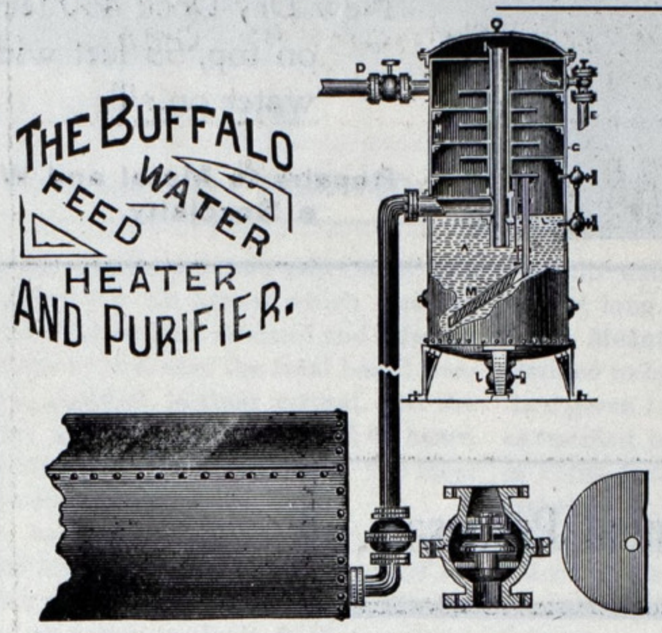

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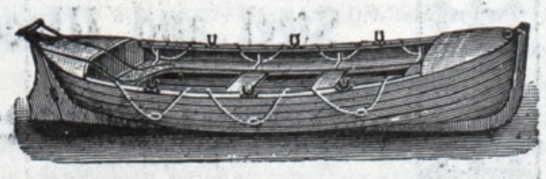

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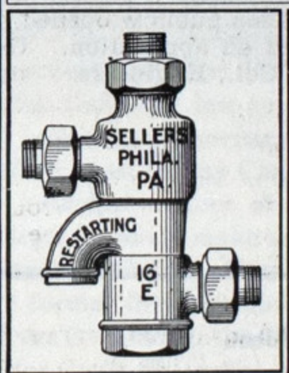

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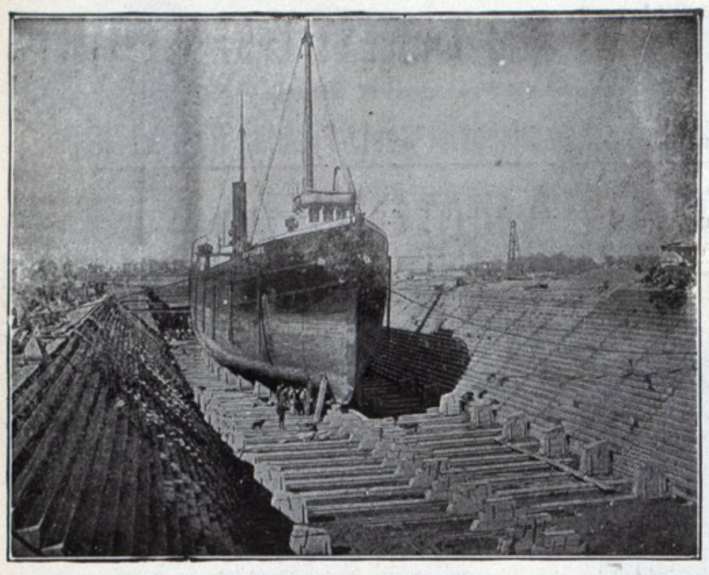

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U. S. ENGINEER OFFICE, Jones Building, Detroit, Mich., May 6, 1901. Sealed proposals for dredging and other work required for removing obstructions to navigation in main Ship Channel between head of St. Clair and mouth of Detroit rivers, will be received here until 12 noon (standard time) May 28, 1901, and then publicly opened. Information furnished on application. G. J. LYDECKER, Lieut.-Col., Engineers. 19–21

TREASURY DEPARTMENT, Office of General Superintendent U. S. Life-Saving Service, Washington, D. C., May 4, 1901. Sealed proposals will be received at this office until 2 o'clock p. m. of Friday, the 31st day May, 1901, and then publicly opened, for furnishing supplies required for the use of the Life-Saving Service for the fiscal year ending June 30, 1902; the supplies to be delivered at such points in New York City, Grand Haven, Mich., and San Francisco, Cal., as may be required and in the quantities named in the specifications. The supplies needed consist of Beds and Bedding, Blocks and Sheaves, Cordage, Crockery, Furniture, Hardware, Lamps, Lanterns, etc.; Lumber, Medicines, etc.; Paints, Oils, etc.; Ship Chandlery, Stoves, etc.; Tools and Miscellaneous Articles; all of which are to be enumerated in the specifications attached to the form of bid, etc., which may be obtained upon application to this office, or to the Inspector of Life-Saving Stations, 17 State St., New York City; Superintendent Twelfth Life-Saving District, Grand Haven, Mich., and Superintendent Thirteenth Life-Saving District, New Appraiser's Stores, San Francisco, Cal. Envelopes containing proposals should be addressed to the "General Superintendent U. S. Life-Saving Service, Washington, D. C.," and marked on the outside "Proposal for annual supplies." The right is reserved to reject any or all bids, and to waive defects, if deemed for the interests of the Government. S. I. KIMBALL, General Superintendent. 19–20

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